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**LEONARDO MIHALCEA**, Virginia Tech

*Chern-Schwartz-MacPherson classes for Schubert cells and characteristic cycles*

The Chern-Schwartz-MacPherson (CSM) class of a variety  $X$  is a class in the homology of  $X$ . In the case when  $X$  is a compact manifold, it coincides with the total Chern class of the tangent bundle of  $X$ . Its existence was conjectured by Deligne and Grothendieck, and it was first constructed by MacPherson. One can associate a CSM class to any constructible subset of  $X$ , and I will explain how one calculates this class for a Schubert cell in a (generalized) flag manifold  $G/P$ . It turns out that these classes are closely related to characteristic cycles of Verma  $D$ -modules on the cotangent bundle of  $G/P$ , and to Maulik and Okounkov's stable envelopes. This is based on joint work with P. Aluffi, and on ongoing joint work with P. Aluffi, J. Schürmann and C. Su.